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Grain

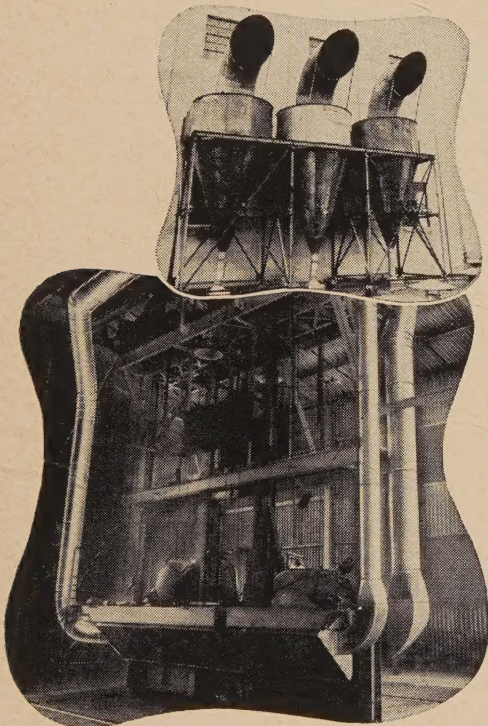
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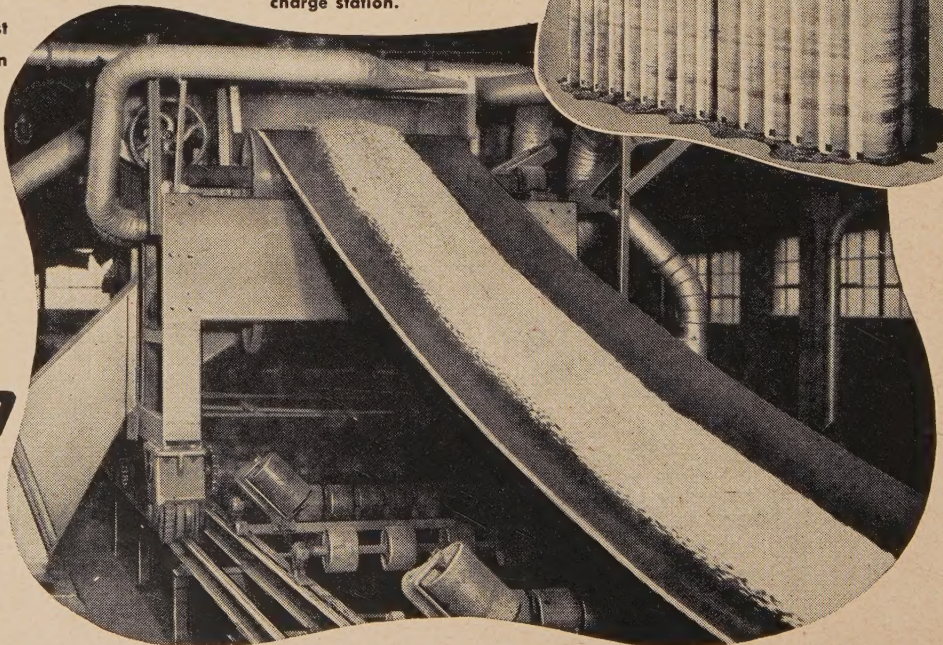
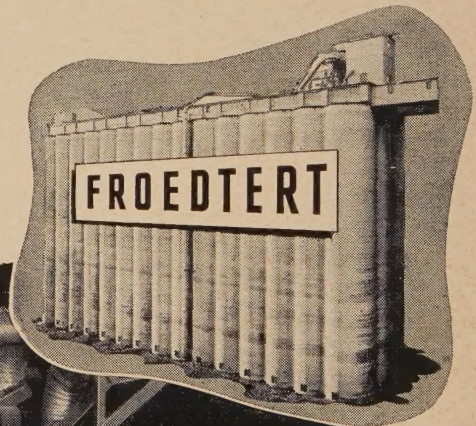
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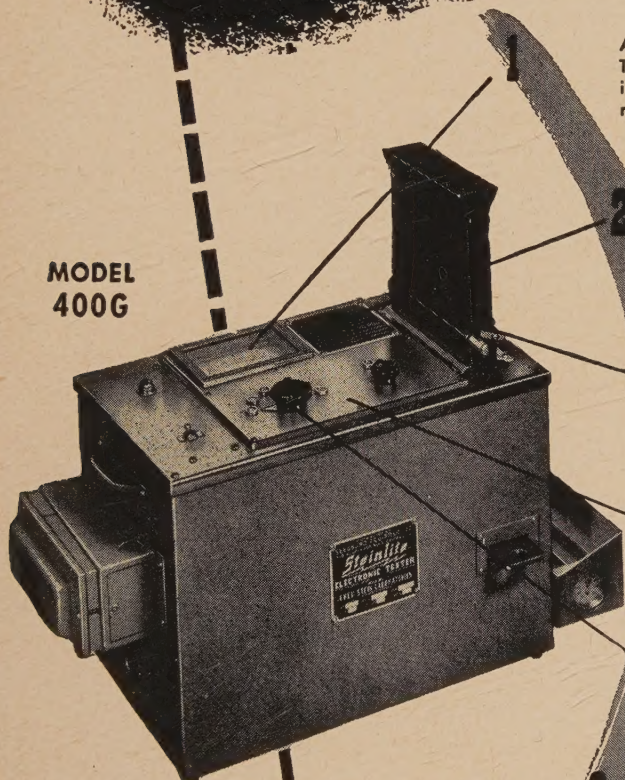
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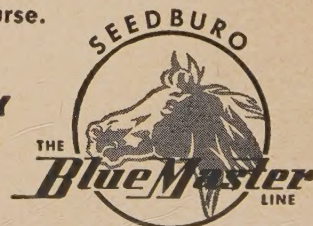
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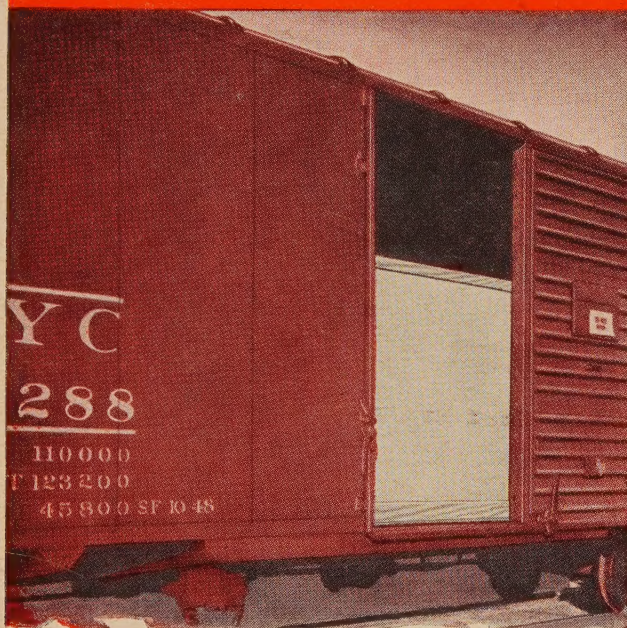
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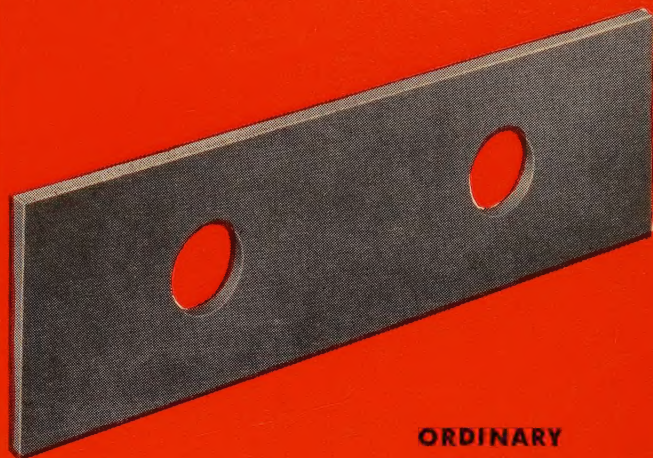
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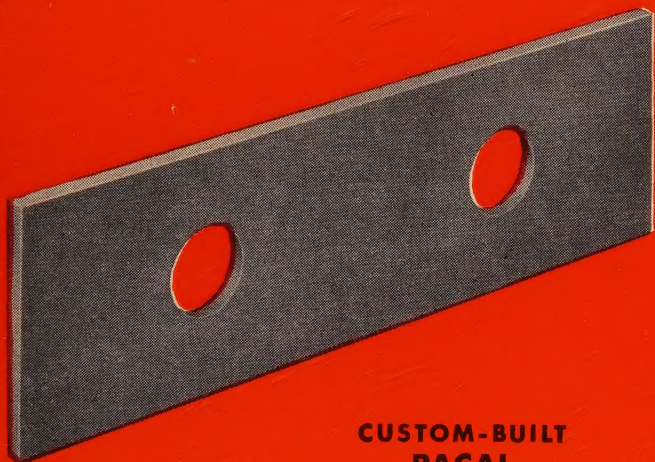
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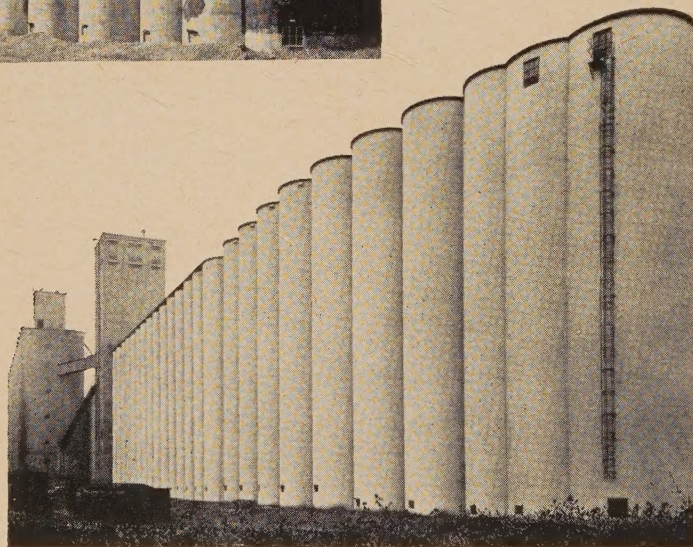


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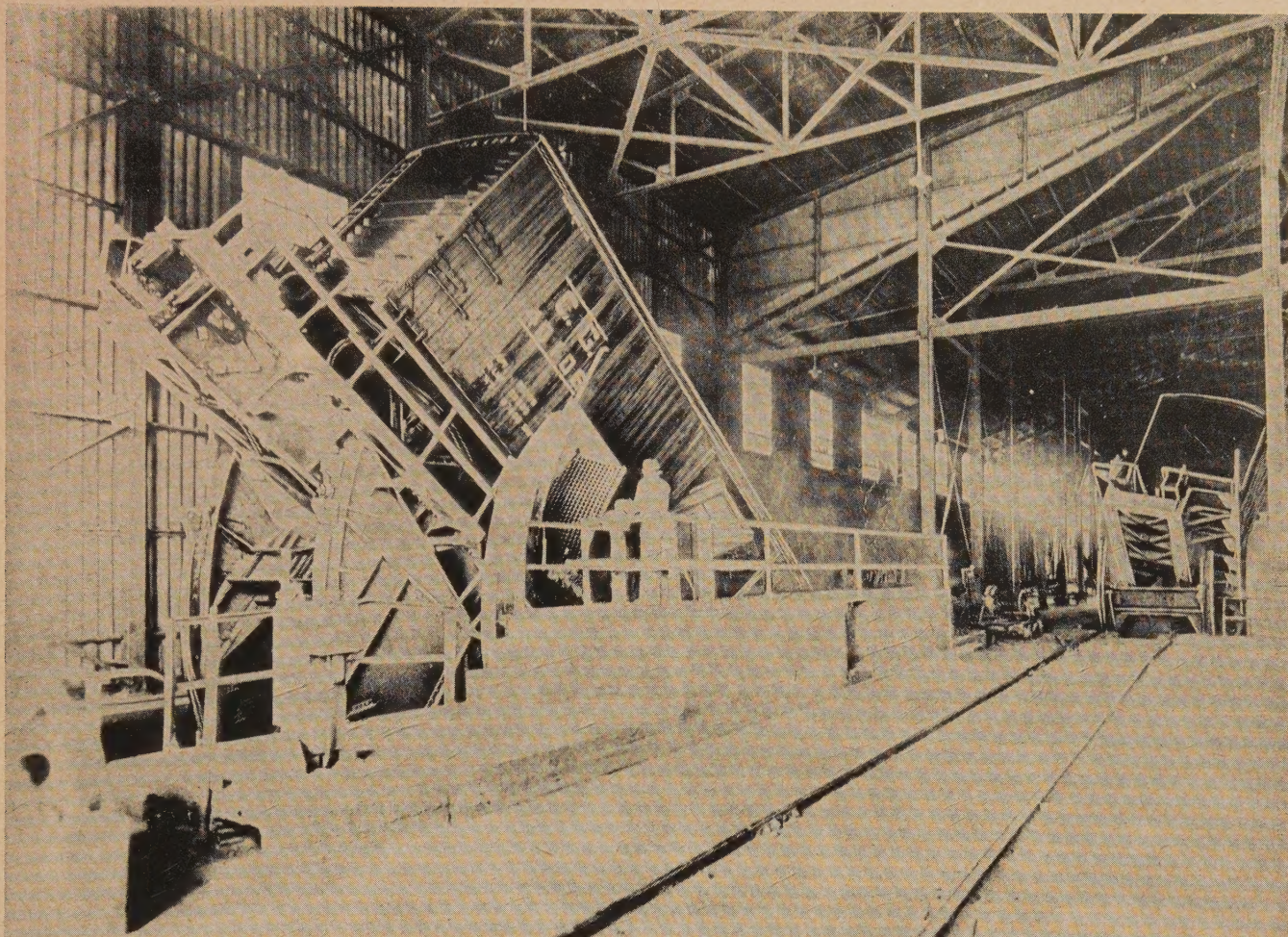


Fig. 1—A grain car unloader which consists of a structural steel cradle so mounted on rollers at four points as to permit endwise tipping to 40 degrees from the horizontal in either direction; and of a car supporting platform, pivotally mounted to permit sidewise tipping to an angle of 15 degrees in one direction.

LUBRICATION of Our Grain Handling Machinery

By A. F. BREWER

Technical & Research Div., The Texas Co., New York

GRAIN handling requires the moving of large quantities of materials under conditions which often may develop problems in lubrication. The machinery must run continuously for long periods of time.

In some Northern areas conveyors in the elevators run virtually at atmospheric temperatures for several months during the winter. Dust must be removed because it can develop an explosion hazard. All this means that the machinery must operate dependably, through effective lubrication.

Power and its utilization obviously is an important item. Lubrication, as an adjunct to economical use of power is equally as important. Since grain elevator equipment operates without the benefit of any heat, special consideration must be given to keeping lubricant "drag" at a minimum by used carefully selected oils and greases.

A surprising amount of power can be lost in turning cold conveyor troughing rolls and return idlers, as

THIS article is part of one which appeared recently in *The Texas Company's technical paper "Lubrication"* and is reproduced here by special permission. Although most of our readers understand fully the equipment discussed here, many of the lubrication factors and principles will be new to them, and consequently instructive. The importance of proper lubrication cannot be overemphasized and it is a subject too infrequently considered. Illustrations are by courtesy of the Link Belt Co., Chicago.

hundreds of these are required for the long belts which are used.

Handling Machinery

The popularity of the motor driven conveyor has been impelled by the applicability of the unit type of drive. Motors also drive the blowers, and exhausters for creating vacuum up to 8 in. when grain is to be removed from holds of ships by suction. Induction type motors are used for such drives to reduce the possibility of arcing and dust explosion.

The elevator operators, however, do not rely entirely upon this precaution; they also provide means to prevent dust accumulation by installing suction dust-gathering devices located at strategic points with respect to the conveyor belts.

Anti-friction bearings and unit type of reduction gear drives are well

Grain

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adapted to grain handling service. Safety of personnel is decidedly affected by their usage, inasmuch as their location in certain parts of the elevator may often be hazardous, even for re-lubrication, not to mention repair. The use of equipment which will reduce the necessity for frequent re-lubrication and lengthen the machine's useful life is therefore of material advantage.

Prevention of dust accumulation benefits lubrication in that possibility of contamination of bearing, gear and chain lubricants is reduced, thus enabling them to more effectively perform their intended functions. Reduced maintenance and replacement costs and marked increase in power economies follow especially when

blowers. The importance of these units necessitates faultless design and effective lubrication to insure continuous operation.

Grain Conveyors

Grain conveyors are built for endurance and hard service. Several types are used, i.e. the screw, ribbon, bucket or belt design.

The screw type, which is essentially a stamped or rolled steel spiral, secured by lugs or welded to a pipe shaft, and the ribbon conveyor which consists of a ribbon flight similarly secured to the shaft with an open space between the ribbon and shaft, are subject, probably, to the most severe service.

The screw, or as it's occasionally

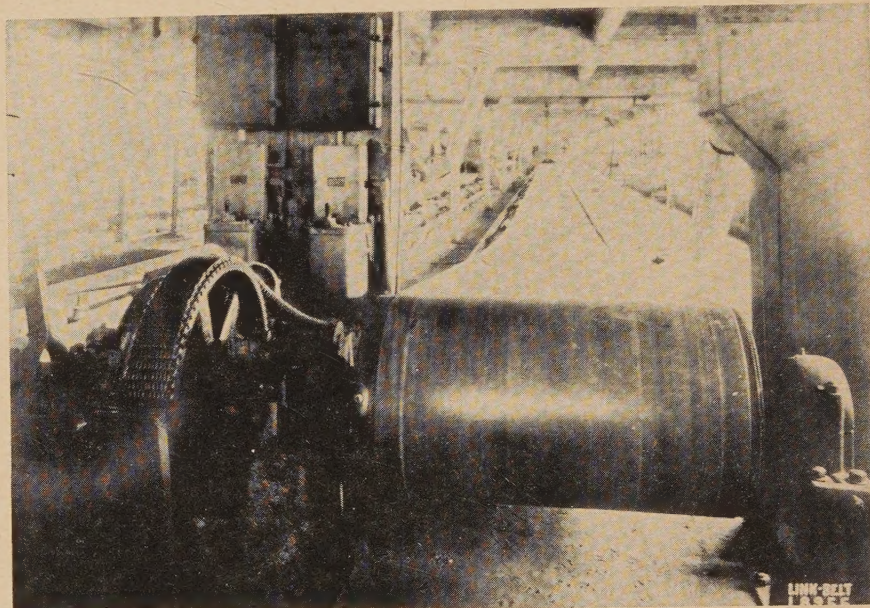


Fig. 2—A silent chain drive (with upper half of oil retaining case removed) to a 42 inch wide 780 foot long grain-handling belt conveyor over storage bins.

properly designed sealed housings for bearings, chains, and reduction gears are provided.

Temperature Must Be Controlled

Temperature control is essential in the handling of grain and finely ground cereal flours especially when the former may be damp and apt to develop chemical action, which will cause rise in temperature. Between individual particles this is not serious but the cumulative effect of millions of such particles packed in close contact must be considered. For this reason, great care is taken to control bin temperatures, by blasts of cold air.

This also prevents premature fermentation of grain which might otherwise occur under high temperatures, and decreases the possibility of dust explosions, which have a direct relation to temperature and the dust content of the air.

The requirement of large quantities of air for the movement of grain or for the elimination of dust, creates the need for high capacity fans and

termed, "the spiral conveyor," is designed for horizontal moving of dry materials or on inclines up to 15 degrees, with reduced capacity. It is constructed to revolve in a box of steel, wood, cast-iron or concrete, according to the nature of the materials to be handled. The screw shaft normally is carried by plain bearings which are grease lubricated.

The bucket conveyor is the principal elevating medium in the handling of grain, by means of bucket-shaped receptacles. It can be constructed for vertical as well as horizontal service. Constructional features vary but the principles are similar in all. These conveyors will handle practically any material which will not adhere to the containers. A bucket conveyor usually consists of a belt to which the buckets are attached. It may be vertical or inclined and have continuous or non-continuous buckets. The discharge and in-take of such a conveyor will depend upon the locality, material to be handled, and the general purposes for which handling is carried out.

Belt conveyors involve an endless belt of fabric or rubber designed to travel over pulleys at the conveyor ends, the loaded section being supported on troughing idlers at the sides which allow the belt to form into a trough. The empty belt is supported on straight idlers. Such a conveyor will handle any material in bulk which will not adhere to it, and which can be properly fed thereto. Belt conveyors are very widely used for handling grain over the bins. The length of these conveyors in the modern elevator requires the use of hundreds of idlers of either plain or anti-friction bearing type. Lubrication of these bearings can be most efficiently accomplished through the use of a short fibre, mixed-base grease. This is most important when temperatures are low in that this type of grease offers "quick shear" or "low lubricant drag" allowing the belt to be brought up to normal operating speed with a minimum of power demand. This type of grease will also form an effective collar or seal at the end of the bearing which excludes dust and keeps wear to a minimum.

Motor and Conveyor Bearings

The electric motor is the predominating prime mover in the grain elevator as well as the flour mill, operating through chain drives or speed reduction gears. The manner of installation, however, will vary according to location of the various driven elements. Group driving from a common source of power transmission will be practicable in some elevators; in others individual drive to each exhaustor suction blower or conveyor will prevail.

Regardless of the type of installation, lubrication is most important, especially where gears and bearings are in close proximity and there is possibility of contamination of lubricants by dust. When the anti-friction

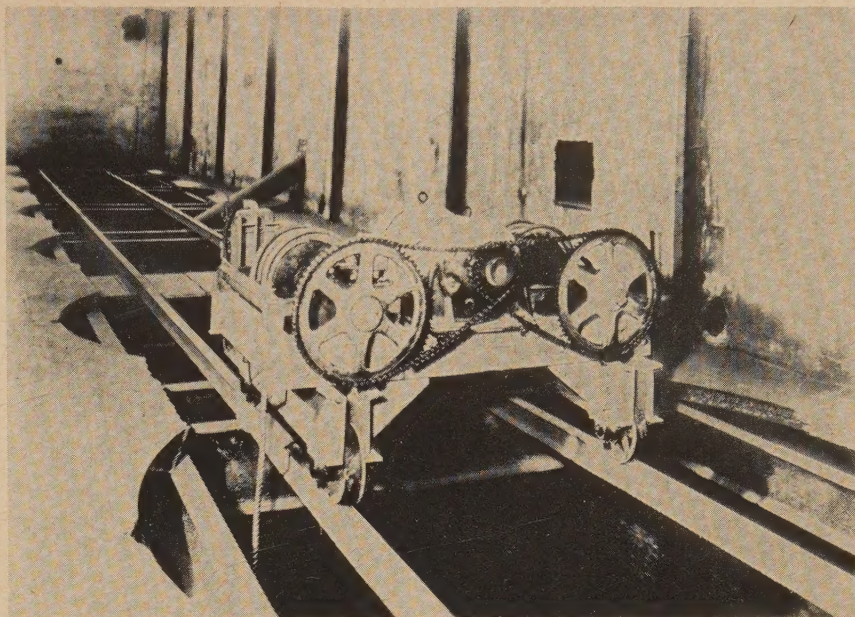


Fig. 4—Two roller chain drives to a power shovel in a grain elevator.

bearing was made available it enabled design and construction of bearing housings which could be more readily sealed against entry of dust. Both ball and roller bearings have been successfully applied to grain elevator and mill motors, in general designed for grease lubrication by the same grease as used on comparable conveyor bearings.

The selection of lubricants for anti-friction bearings, must be studied with full-realization of the difficulties which may result from use of an unsuitable product. Best results will be obtained from a grease of normal consistency, capable of functioning at high temperatures to insure against breakdown and separation, although, in general, motor, conveyor and blower bearings in the elevator and mill will seldom exceed 125 deg. F., in average service.

Yet, over-heating in the bearing itself may occur in direct relation to the amount of lubricant used, particularly if this latter is a grease. If it is too heavy or inert, an excessive quantity in any anti-friction bearing may lead to a considerable rise in temperature due almost entirely to internal friction within the grease itself. Obviously were this to continue explosion temperatures might be approached, should there be any appreciable amount of dust present in the air surrounding the bearings in question. In view of the necessity for guarding against over-lubrication, careful elevator operators observe a regular schedule for greasing all anti-friction bearings, applying but a very small amount of fresh grease at intervals of from one to three months, according to the location of the bearings, the tightness of the housings, and the time operated. Electric motor bearings must be very carefully lubricated, for use of grease to any appreciable excess may lead to rupture of the seal and fouling of the windings. This will be aggravated where windage, or draft occurs through the bearings and motor. Moisture might, in turn, cause arcing and sparks, which in the presence of grain dust might result in an explosion. For this reason explosion-proof motors are very widely used.

Speed Reduction Gears

The enclosed type speed reducer has a definite place in grain elevator service. As the primary element in transmission of power to conveying equipment, and the various machines in the subsequent grinding and screening operations the speed reducer is a dominating factor.

The modern, oil-tight, dust-tight gear case is a decided adjunct to effective lubrication and prevention of

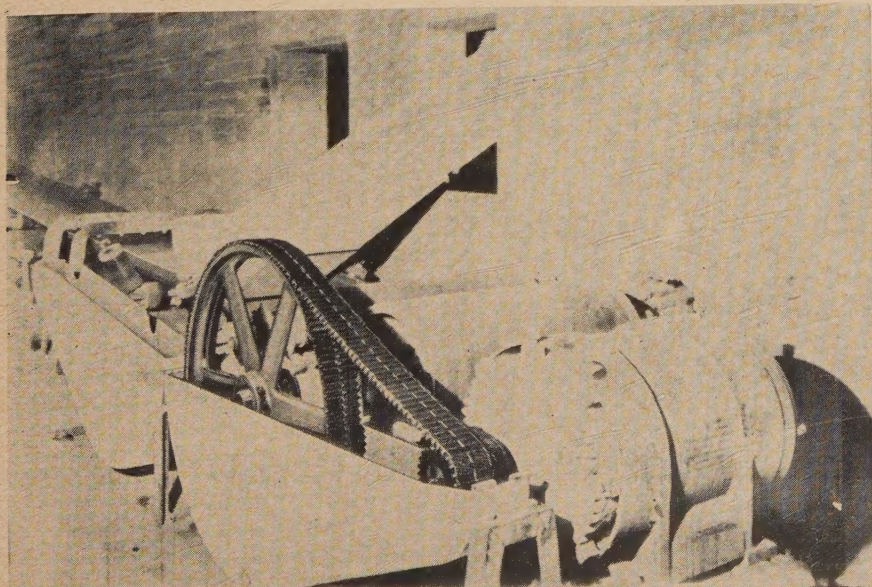


Fig. 3—A 40-hp. silent chain drive 36 inch centers, 1170 to 170 rpm. at a grain elevator.

wear. The essential characteristics of a good gear lubricant are that it shall provide protection to the gears and bearings through the provision of a strong film of oil that will resist rupture even under abnormal loads. These gears and bearings are highly finished and must also be protected by the lubricant against rusting and corrosion during idle periods. Extreme caution should be used at all times in the handling of these gear oils to keep them clean. Grain dust is abrasive and if it is not kept out of these housings rapid wear will ensue.

Where gears operate in housings that are not oil or dust tight, relubrication is necessary at shorter intervals to remove the contaminated lubricant. The lubricant must of necessity be of a type that will not allow the oil and dust mixture to build up on the

teeth will carry enough oil up to those of the companion gear.

With heavier gear lubricants, it will be possible to run with a somewhat lower level than where more fluid products are used. It is for this reason that reduction gear units are usually equipped with an external gauge glass to enable the operator to observe at all times just what level he is carrying.

The Geared Motor

The geared motor is well suited to blower and conveyor service due to its unit housing design and facilities for automatic lubrication. In this unit the bearings are similar to the bearings of the modern type of motor, being largely anti-friction, designed for grease lubrication. The reduction gear set, however, is designed for oil lubrication, the oil being contained in a

ployes is increased and cleanliness around equipment is improved. For this purpose, the suction blower or exhauster is a valuable piece of equipment. Normally but a slight amount of vacuum is required to remove effectively all dust from grain as it passes over conveyors. In the early stages of handling, however, where the grain itself is actually moved by suction, for example with suction unloaders, a vacuum of up to 8 inches may be necessary.

The bearings of blowers and exhausters are very similar to the motor bearings found in the grain elevator or mill being either fitted with ring oilers or ball or roller bearings. Their lubrication requirements also are comparable to those of the motors.

Ring oilers provide a flood of oil which is constantly passed through the bearings, thereby washing out any dirt, dust or metallic particles that may have gained entry. On account of this washing action of the oil, however, the reservoir will gradually tend to accumulate a certain amount of sedimentary deposits. Therefore, it should be flushed out and cleaned at periodic intervals, the old oil being replaced with a fresh charge. In elevator and mill practice a good quality straight mineral oil of around 300 seconds Saybolt Universal Viscosity will be used at normal temperatures.

Where ball or roller bearings serve to support the journals of fans, rotors or impeller, each is individually lubricated periodically. Prevention of corrosion in such bearings, is regarded by many as perhaps the chief function of the lubricant, rather than actual reduction of friction or removal of heat. Grease is generally used for this purpose. It should be a high quality anti-friction bearing grease specifically prepared to resist chemical or physical change.

All fans and blowers, however, will not require or be equipped with ring oilers or anti-friction bearings. In certain cases plain bearings lubricated by grease cups, pressure gun fittings or sight feed oiling devices may be regarded as suitable by the builders, especially where operation is to be more or less intermittent. For such service a medium bodied engine oil or a medium grade of compression cup grease can be used.

Driving Chains

Lubrication of driving chains requires careful study of operating conditions, including such factors as speed, load, clearances and extent of bending or articulation. Speed is important, since it involves the frequency of shocks due to engagement of the chain links with the gear or sprocket teeth. In other words, the greater the speed the more frequent will be the shock on each link. Whether or not shocks of this nature will be detrimental to lubrication will

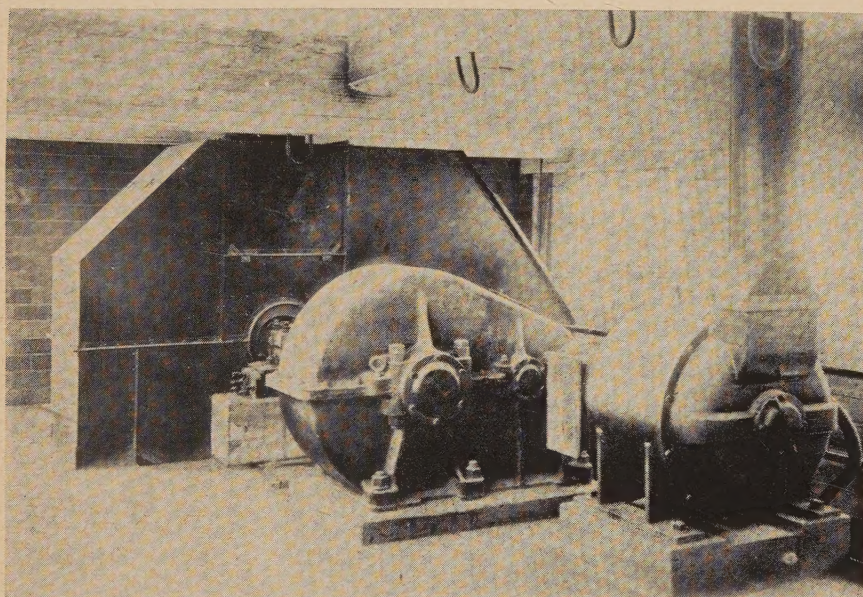


Fig. 5—Showing a 125 hp. double reduction tandem type herringbone gear speed reducer operating elevator legs.

gear teeth as excessive bearing pressures will occur in addition to excessive wear.

Lubrication recommendations are made based on operating conditions and design, so the lubrication engineer must develop the best practices possible to meet and serve the conditions existing. To a certain extent recommendations are possible for alteration in bearing design, or gear and bearing protection against dust, but the changes must actually be carried out by the mechanical organization of the plant.

Watch the Oil Level

Where gears are bath lubricated, the oil level should be sufficiently high to insure suitable dipping of the teeth of the lower gear. Submergence of too much of the gear or pinion is not advisable and, as a general rule, unless comparatively fluid oils are used, it will not be necessary. The

bath at a sufficient level to insure proper dipping of the lower gear teeth.

As a general rule, it is advisable to keep the oil bath at the level recommended by the manufacturer which is normally from one-third to one-half full, so that the bottom gears will be about half submerged. According to the temperatures of operation and extent to which heat may be transmitted to the gear case from the motor itself, an oil of from 500 to 900 seconds Saybolt Viscosity at 100 deg. F. is used at normal temperatures; at low temperatures it is necessary to use an oil of good pour test to insure adequate fluidity and reduction of drag.

Dust Control

The dust content of the air in the modern grain elevator must be kept down to prevent explosions and fires. There is an added advantage, however, in that personal welfare of em-

Maintenance of Electrical Equipment

BY R. E. VALENTINE

Sup. Eng., Ocean Accident & Guarantee Corp., N. Y.

QUITE a good deal of credit is due the designers and builders of electrical apparatus in this country since the average piece of equipment will perform for a time satisfactorily without any trouble if it was reasonably well installed. If it is given proper care it will function more efficiently, be dependable, and—loaded within rated limits—will usually round out a successful life as long as a generation of man.

Insurance companies which issue policies covering electrical machinery are continually carrying on a campaign first for proper application and second for a regular system of maintaining electrical apparatus. Our inspectors examine electrical apparatus quarterly.

Motors, Generators and Other Rotating Machines

Accumulations

Accumulations of dirt and dust of any character on insulating material hasten deterioration because (a) (particularly in case of winding insulation) heat radiation is restricted, which permits more rapid drying out of the material and (b) the dirt may include particles of destructive agents such as acids, alkalis or metals. To remove the usual accumulations, blowing the windings and other parts of

machines with dry compressed air is the general practice. The frequency of the blowing should be governed by the environment in which the machines operate.

It has been my experience that in certain applications, where machines run in an atmosphere of powdered or atomized metal dust, blowing appears to do more harm than good. In such instances it has been found more satisfactory to dismantle the machine, perhaps annually, and wash out accumulations with a suitable solvent.

Oil and Grease

It is pretty widely known that lubricating oils and greases dissolve certain compounds in ordinary insulating varnishes. A common source of oil and grease on windings is from the bearings and may result from careless oiling or greasing. Where oil or grease is present it should be removed with the aid of one of the many solvents available for the purpose. Since the solvent will dampen windings a thorough drying will be required before the machine is again ready for service.

Usually the cleaning of smaller machines is carried on with a hand spray, brushes and rags. It should be remembered that the solvent may

affect the varnish covering the insulating material. Spraying or dipping would then be required. Whenever possible, the varnish should be baked on.

Success in the cleaning of large machines has been achieved by using ground corn cobs under air pressure. It is said that the cobs not only polish off accumulations but also absorb any oil present.

Moisture

Moisture will collect on and in insulation if machines remain idle, more quickly if the surroundings are damp or if the difference in temperature between running and shut-down is relatively great.

Many large motors I have noticed, are provided with strip heaters which go in service when the motors are shut down. The heaters have been instrumental in preventing a considerable number of breakdowns.

Megohmmeter

An insulation resistance tester is a handy piece of equipment for detecting dampness in circuits and windings, for measuring the effects of accumulations and for checking the progress of deterioration in material. Our engineers regularly test insulation resistance quarterly. If by comparing readings between tests it is observed that there has been a marked decrease since the previous test it is an indication that some work needs to be done on the winding or circuit.

A zero reading, as everyone knows, means a ground which may be a breakdown of the insulation or at any rate contact between a conductor in the circuit and the ground or frame of the machine. An insulation resistance reading at the low end of the scale is an indication of moisture in the insulation or accumulations on it, but even if the reading obtained is sufficiently high for apparent safety when it had dropped appreciably something has happened to the winding or circuit to warrant attention. Of course, if there is a dead ground the job is to clear it from whichever part of the circuit it is found to be, after segregation.

If the reading is not zero but less than one megohm dismantling the

depend upon the load and constancy of operation.

Rapid repetition of such shocks upon the bearing points of the chain may tend to force or squeeze the lubricating film out from between moving elements. Lubrication is most effective when means are provided for constant renewal of the lubricating film on the chain links.

Some designs develop splash lubrication. Splash lubrication can be attained by means of a disc attached to one side of the main shaft. As the wheel rotates the disc dips into the oil in the base, and throws it to the top of the casing, which is built in the shape of a wedge.

As a result, there is a continuous and uniform dripping of oil upon the chain. In casings of this type, the oil level is below the chain, the disc dipping in it to a depth of somewhat less than one inch. Where bath lubrication prevails, however, the oil level should be somewhat above the lowest

part of the chain. Casings which are used on high speed chains, in turn, are often equipped with an oil pump, the oil being sprayed upon the chain under relatively constant pressure.

Exposed chains are lubricated by brushing the lubricant uniformly over the driving surfaces, or by removal and immersion of the entire chain. Some chains of this type are treated with the lubricant before they leave the factory. Usually a soaking bath is used, the chains being immersed for a sufficient length of time to allow penetration to all interior parts.

Silent chains require the use of a relatively fluid straight mineral lubricant. When chains are encased, if they are to be bath lubricated an engine oil having a viscosity of about 500 seconds Saybolt Universal at 100 deg. F., will be suitable. Where exposed or encased but not submerged in oil, a heavier product, such as a mineral cylinder oil or light gear lubricant is advisable.

machine to clean, perhaps wash and dry the windings would be the first step to take. When there is no improvement after this treatment, rewinding may have to be done.

Where the winding, leads or both are comparatively old, a drop in insulation resistance would probably indicate the necessity for a new winding or leads dependent upon which part of the circuit the low reading exists.

Bearings

Some sleeve bearings wear more rapidly than others depending upon the type, the environment in which the machines operate, or downright neglect. Checking the air gaps with feeler gauges from time to time will show how fast wear is progressing. Naturally when the clearance at the bottom or at the belt pull side of the gap reaches no more than 20% of the original clearance a replacement is advisable.

Our men check air gaps when they inspect the machines at rest which we like to do quarterly.

Oil and Grease

Oil and grease in most bearings becomes contaminated with dirt, dust or other foreign matter. In the usual type of sleeve bearings the oil ought to be drained, the reservoir washed out with a light oil (kerosene) and refilled with new oil, perhaps annually. Machines with totally enclosed bearings can run longer before any attention is needed. Ball or roller bearings of machines which are run

pretty continuously or intermittently under heavy loads require washing and refilling with grease or oil, whichever is used, from time to time. The frequency of repacking or refilling ball or roller bearings should be done under the manufacturer's instructions.

It has been my observation that in some plants an oiler makes his rounds at stated intervals and pours oil in the reservoirs or shoots grease in the bearings whether or not any is needed. It is not good practice. With some ball or roller bearings too much grease may be as bad as not enough.

Oil should never be put in the bearing when the machine is running unless an emergency requires it. When the oil rings are turning over the journals they take up some of the oil from the reservoirs and it will appear that the oil is below level. Any additional oil then overflows most often inside the end bells. This surplus oil may and frequently does reach the windings.

Commutators and Rings

Slots of commutators will need cleaning when oil, carbon or copper particles collect. Grit will wear ridges in commutators. When they become high and thin the ridges break off and pieces will lodge in the commutator slots. Grooves in commutators are annoying but may not give any trouble if the brush contact is good and the grooves are relatively wide. Slip and collector rings may become rough. Sometimes depressions or

grooves are made in the rings by improper synchronizing, surges in load, or by leaving the field on when the machine is at rest.

When poor contact between rings and brushes results, grinding or stoning becomes necessary. Since one collector ring will wear or get rough more often than the other, swapping the field leads at the rings annually will tend to keep both rings wearing the same.

Brushes

To get the best results from brushes on commutators or rings good contact is necessary. The brushes should be sanded when installed new or after the commutators or rings have been turned or ground, to fit the contour of the surface upon which the brushes bear. A brush may be used as long as the spring pressure is sufficient or has worn down to within a short distance of the ferrule or pigtail insertion. It is understood, of course, that the brush has not been broken or cracked. Probably a check of commutators, rings or brushes every three or four months will serve to forestall trouble from these conditions.

Squirrel Cage Windings

Bars in squirrel cage windings have been known to break because of vibration or other causes. The joints between bars and rings sometimes separate. This does not occur often but the windings should be looked at when other parts of the machine are being inspected.

Amortisseur windings of synchronous machines appear to fail oftener. A visual examination along with tests of the bars with a light hammer will reveal broken or loose parts. If bars are broken, indications will be apparent when the machine is started if the machine is of the open type.

Connections

Connections, particularly soldered joints, are found loose from time to time. Probably the joints between armature coils and commutator risers are the greatest offenders especially if the machines are subjected to rated loads over long periods or to overloads intermittently.

During World War II, a lot of inferior solder was used. Some of the solder is still showing up, not only in commutator risers but in current carrying connections between other sections of machines. The riser connections do not need to fail completely. We have caught them when a little of the solder started to soften and prevented a failure by having

Grain Processors Demand More CMP Materials

At a meeting held Nov. 16 in the NPA at Washington of grain processing machinery manufacturers and other food industry executives with Ralph S. Trigg, deputy administrator of the DPA and other high officials the consensus of opinion was that there should be a greater allocation of CMP materials to the food industry.

Raymond J. Walter, executive secretary of the Grain Processing Machinery Manufacturers Assn., states that the situation as of today is one of insecurity, and that adequate supplemental relief in the form of additional controlled materials must be forthcoming, as explained in a letter to responsible officials, pointing out that the grain processing industry is of prime importance second only to the production of grain on the farm for without this industry — there is no bread, no meat, no milk, no butter, no eggs, no poultry, no livable food supply.

The material requirements requested by the grain processing machinery

manufacturers are the requirements of the industry. Any appreciable reduction thereof is going to be proportionately reflected in the grain processing industry's ability to convert grain into edible or usable forms.

The essentiality of the grain processing industry is such as it has to be kept in continuous production. It does not and can not manufacture in anticipation of needs.

Grain processing machinery is necessarily manufactured to order. There are no stocks of such equipment. There is no inventories of finished products.

Grain processing machinery manufacturers are urged by Mr. Walter to write letters immediately on the vital necessity of being granted requested supplementary allocations, addressed to Roy C. Hartwell, Chief of Food Processing Machinery Branch, National Production Authority, General Industrial Equipment Division, 3J6 New GAO Building, Washington 25, D. C.

the joints reworked. Riser joints as well as other joints which have loosened may be detected by feeling them immediately after a machine is shut down. In fact, shorts in stator coils, broken commutator bars, and loose connections may also be revealed by feeling.

The difference in temperature will be sufficient to enable you to pick the spots. As for shorts in coils or bars it is not always necessary for the machine to carry full load to make the shorts apparent. Joints, on the other hand, frequently do not reveal reduced contact as easily until a fair amount of current is flowing through them.

Mechanical Parts

Loose couplings have shown up but I have known of only a few that were broken. They were of the rigid type. Often coupling bolts loosen without influencing dependability. Core bolts in large armatures of mill motors have been found broken and with machines that have developed this annoying habit it would appear advisable to go over the bolts once a month.

Frames loosen on their bases and end bell bolts come out. The conditions should be apparent to the operators if the machines are accessible so that they do not have to wait for discovery by inspection.

Starting Equipment

Contacts of starting equipment will burn, wear and get rough. If the service of the machine is rugged, contacts may require smoothing once a month, once a week or oftener. It is better to look at them regularly than risk the chance of open circuiting which might result in single phasing, erratic control or various other things.

Resistor grids crack or break, so when the control is looked over a little time ought to be given to the grids. Blowing them out regularly will prevent current leakage and permit better heat radiation.

Synchronous Converters

There are still some synchronous converters around the country. We give them a complete inspection quarterly and once or twice a year we check the overspeed trip by running machine above rated speed if the converter is operated in parallel with other converters or generators.

Our experience with converters is not good despite all the attempts our customers and our inspectors make to keep them dependable. Most failures are pretty complete and the repairs are relatively costly.

Transformers

Oil

Oil-insulated, self-cooled transformers ought to be opened at least once a year to check the connections at the terminal boards, the mechanical fastenings and the physical condition of the oil. We check the insulation resistance of the windings at least twice a year, also look at the condition of the bushings and external connections at each inspection.

Conservator, Flammable-Liquid And Gas-Filled

Conservator, flammable-liquid-filled and gas-filled transformers need not be opened oftener than five or six years. I do think it would be worth-

while to go into such transformers after they have been in operation for a year. There have been occasions where connections appear not to have been made as good as they should have been either at the factory or after they arrived.

Water Cooled

Water cooled transformers need looking into annually especially if they are loaded heavily for part of the day and loaded lightly for the balance of the day. The oil may become saponified on the surfaces of the cooling coils. Such accumulations will reduce heat transfer and the winding temperature will be increased.

The cooling units should be sub-

MONTHLY SAFETY REMINDERS

~~~~~January, 1952~~~~~

**TUES. 1** — Now we are in a New Year. Let's all work to make the world better by reducing the losses due to accidents.

**WED. 2** — Learn safety; think safety; and always act safely.

**THURS. 3** — Cold hands that are numb do not grip securely; cold feet are apt to stumble and trip. Wear warm clothes.

**FRI. 4** — Good customers come back — good products don't.

**SAT. 5** — Machines covered with grease or oil are dangerous to work around. Keep them clean.

**SUN. 6** — Be pleasant every morning until 10 o'clock. The rest of the day will take care of itself.

**MON. 7** — There is no ceiling to stop the high accident record in a plant where there are careless workers.

**TUES. 8** — Try accident prevention. There's a future in it.

**WED. 9** — Make up your mind to work so expertly and safely at all times that you will not be the cause of an accident, nor an accident victim.

**THURS. 10** — A man's tools and the way he uses them are marks of his quality as a workman.

**FRI. 11** — Safety is part of every job. Be sure you do your part to prevent accidents.

**SAT. 12** — Safety devices grow from safety ideas.

**SUN. 13** — You can't expect a snow-white safety record if you are in the dark about your duties to aid accident prevention.

**MON. 14** — Poor judgment results in accidents.

**TUES. 15** — Is your machine fool-proof? Your suggestions will help make it so.

**WED. 16** — The Green Hand is Blue — not from cold; but from lack of a cheering word from you.

**THURS. 17** — Out of 15 hints for Good Housekeeping — all but one can be applied by the man on the job. Take the hint and look around.

**FRI. 18** — Sand those slippery spots before someone falls.

**SAT. 19** — Look them over: Check for mushroomed heads, cracked handles, sprung wrenches etc. Your tools must be safe.

**SUN. 20** — Good housekeeping is a combination of orderliness and cleanliness.

**MON. 21** — Look over your ladders. Be sure not to overlook weak or broken rungs or defective side rails.

**TUES. 22** — Don't be "Safety Lazy". Keep your work area clean.

**WED. 23** — Avoid strains by making sure you have firm footing for pulling, pushing, lifting.

**THURS. 24** — If you see an unsafe condition — report it.

**FRI. 25** — Are all guards in place? Take care of safety devices and they will take care of you.

**SAT. 26** — Occupational accidents cost industry \$40.00 per worker per year. The employee's loss is probably more — plus pain and suffering.

**SUN. 27** — Doing nothing is the most tiresome job in the world because it is impossible to quit and take a rest.

**MON. 28** — The industrial safety record is four times as good as it was in 1920. Perhaps this is because safe workers are 4 times as careful.

**TUES. 29** — Believe sincerely in accident prevention — attend safety meetings.

**WED. 30** — The Company will never ask you to do a hazardous job without the best protective devices and equipment money and brains can provide.

**THURS. 31** — Haste is speed at the wrong time and place.



jected to an air pressure of one and a half to two times their operating pressure every four or five years. If it is known that the character of the water used is corrosive, tests at more frequent intervals would be required. If the water is scale forming the coils may have to be treated with some sort of a solvent to remove the scale.

### Rectifier and Furnace

Rectifier and furnace transformers usually are loaded to capacity during their operating cycle. It would seem advisable to open these transformers every two years and to detank them if they have been in service for about six years.

Every rectifier and furnace transformer that I have seen detanked required reblocking of the coils, refasting of the leads or other major repairs. Unfortunately in three or four instances last year, the transformers were not opened soon enough and it was necessary to replace some of the low tension coils.

### Bushings

Bushings and insulators do not serve their purpose well if they have accumulations upon them. Cleaning at stated intervals is necessary dependent upon how fast the deposits collect. Usually bushings around many plants require cleaning annually. The cleaning may consist of any method from washing with water under pressure to applying steel wool and solvents.

Instruments are available for checking insulators by the dielectric power factor method. Since anticipated failures will be revealed by such tests replacement may be made at the time of a planned outage instead of waiting until there is a breakdown.

### Oils

We like to see the oil in all transformers rated over 200 Kva. tested once a year. While we have been successful in keeping the standard at a 22 Kv. minimum, we are watching the experience of some of the public utility companies who are working on the premise that oil testing 17 Kv. is satisfactory. More attention is being given to chemical conditions of the oil than to the breakdown voltages.

If sludge or dirt is found on terminal boards or on the internal surfaces of the tank the oil ought to be drained, the windings and tank washed with transformer oil and when properly cleaned the tank should be filled to the proper level with new or filtered transformer oil.

Breathers ought to come into their

## THE HONOR ROLL

The pace is getting a little hotter. Jerry Lacy looms up as the new threat to the two leaders. However, the total is still behind this period last year. This roll of distinguished names should be at least twice as long. Does your name appear on the list? Get busy and have it there in the next issue. A few letters to prospects may surprise you. Every SOGES member should bring in at least one new member. The standing on Dec. 10:

|                                   |    |
|-----------------------------------|----|
| Vincent Blum, Omaha               | 5  |
| Donald Burke, Omaha               | 5  |
| Jerry Lacy, Omaha                 | 4  |
| Charles J. Winters, New Orleans   | 3  |
| O. E. Christensen, Portland, Ore. | 2  |
| O. B. Duncan, Kansas City         | 2  |
| Harry Ewert, Chicago              | 2  |
| Ralph Garber, Enid                | 2  |
| Harry Hanson, Chicago             | 2  |
| Earl Mahan, Council Bluffs        | 2  |
| Ernest Ohman, Minneapolis         | 2  |
| W. R. Appleman, Chicago           | 1  |
| A. R. Bourdonnay, Ft. Worth       | 1  |
| Vern Erickson, Spokane            | 1  |
| E. P. Escher, Chicago             | 1  |
| Lloyd Forsell, Chicago            | 1  |
| John Goetzinger, Omaha            | 1  |
| Don Halgreen, Amarillo            | 1  |
| Lewis Inks, Akron                 | 1  |
| A. W. Johnson, Seattle            | 1  |
| Mark Kaplan, Los Altos, Calif.    | 1  |
| Jack Kitching, Buffalo            | 1  |
| Walter Kostick, Minneapolis       | 1  |
| R. K. Krebbs, Kansas City         | 1  |
| John Mack, Buffalo                | 1  |
| Lee McGlasson, Seattle            | 1  |
| Edwin C. Murray, Oakland          | 1  |
| Ted Musser, Erie, Pa.             | 1  |
| Kenneth Sacre, Minneapolis        | 1  |
| Herbert Sales, Omaha              | 1  |
| Stewart Searle, Jr., Winnipeg     | 1  |
| Harry E. Surface, Kansas City     | 1  |
| Dale E. Wilson, Chicago           | 1  |
| Clayton Witham, Kansas City       | 1  |
| Total                             | 56 |

share of attention also. The screens of open air breathers may become plugged with dirt and dust. As regards drying breathers the drying agents (calcium chloride, silica gel, etc.) may become saturated with moisture after a year or two so that to remain effective the agents need reactivating or replacing.

### Tanks

Tanks or cases of transformers need inspection too. Gaskets of covers do deteriorate and may permit the entrance of moisture. Joints of radiators, bushing flanges and conservator connections may loosen from vibration or because of temperature changes. The result will be oil leaks. Fins of radiators and pipes of cooling coils may become damaged mechanically. Where

holes are made oil leakage will occur or moisture will enter the tank.

### Tap Changers

Tap changers which are frequently operated should be looked at once a year or so. Contacts may wear, bolts and nuts may loosen and the parts may become out of adjustment. If the tap changer fails in service it may require some time to procure replacements and the transformers may be badly needed.

### Miscellaneous Apparatus

Buscs, switchboards and oil circuit breakers need a going over once a year. If the surroundings are dirty such as one would find in a cement plant, for instance, twice a year may be necessary. The principal work may be done by blowing with compressed air, but the insulators should be cleaned by hand so that they may be examined at the same time.

Oil circuit breakers should be opened, the contacts should be dressed or replaced or adjusted. If the oil is dirty and shows signs of being carbonized, it needs changing.

### Disconnects

Disconnecting switches, whether gang or singly operated ought to be examined once a year. Adjustments may be necessary, the contact surfaces may require cleaning and the moving parts may need lubricating.

### Protective Devices

Protective devices are installed in the circuits of electrical apparatus to take it out of service when influences make further operation unsafe for the apparatus.

Small motors (5 hp. and under) used to be protected by fuses only. It has now become pretty general practice, I am delighted to report, to install contactors with thermal relays. There are still many A. C. motors installed above 5 hp. using compensators or auto starters. These starters are usually found with either plunger or thermal relays together with a holding coil which serves as a no voltage release.

There are also old and new installations where an air circuit breaker with an overload trip is provided.

To be sure that the overload protective devices will work, they should be tripped by hand at the time the machine is looked over. Pistons of plunger type relays will get stuck from dirt and grit and the contacts may become welded together. The strips of thermal relays get bent or damaged by external causes.

Large pieces of equipment have



more elaborate devices such as differential or unbalanced relays, low voltage or under voltage relays, power factor relays, reverse phase relays, etc. Because of the costly failures which might result if these devices did not function, it is my opinion that they should be checked with actual current every one or two years.

#### Grounds

System ground connections play a very important part in the stability and safety of electrical apparatus. Grounds ought to be tested every four or five years; in addition arrester grounds should be tested as soon after a lighting discharge has passed through them as practicable. If the charge does not go to ground directly it will seek a path through some of the apparatus, leaving destruction in its wake.

#### Conclusions

No attempt has been made to list in detail the many conditions which might be revealed on inspections of apparatus. It is presumed that the individual charged with the duty of inspecting will be competent to discover missing wedges, loose coils, high mica in commutators.

M. M. DARLING  
Indianapolis



## THE PRESIDENT'S CORNER

**T**HERE are a number of problems connected with an organization such as the Grain Elevator and Processing Superintendents (might as well get used to that new name now, since in a short time it will be official) and chief of these, in my opinion, is the wide distribution of membership. Considerable distances separate our Canadian members, for example, and those in the Deep South; or the members on the Pacific Coast from those on the Eastern Seaboard.

This increases the difficulty of the Society's rapid advancement since a great deal of the work must be done by correspondence. Particularly is this the case with our committees.

We are very dependent on these committees. The bulk of our tasks is

handed over to them. Each committee is headed by an able, experienced man and his task is to see that the job to be done is co-ordinated and effectively solved if possible.

Committee reports are perhaps the most important feature of our national convention. Around them are built discussions. Many of them determine trends and future activities. Some of our greatest problems are still far from adequate solution, but placed in the hands of active committees, we are able to form preliminary conclusions and perhaps aid in the work they are doing by contributing our own ideas.

No one should be satisfied merely with an assignment to a committee. He should be thinking about that

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committee's objectives continually. Naturally, he should answer the chairman's letters as promptly as possible. But the fellows who are most helpful are the ones with initiative and original thinking who are willing to pass along their ideas.

This takes time — and time is valuable to everyone of us. To sacrifice those precious minutes, perhaps hours, demands a great degree of unselfishness. However, our own self-respect demands it. When we joined the Society, it was with the firm resolve to further its interests in every way possible. It's up to us to keep that personal pledge.

If you will bear in mind constantly that individual efforts of members (not just the work of a few) are what enables a Society to advance toward its aims, then you'll not hesitate to get really involved in its activities. Think to yourself: "This is my Society. Am I doing my part to help it progress? If not, what can I do to help it?"

Mutual co-operation and helpfulness will bring us to the pinnacle of success. Don't be a slacker. Be a worker!

## A Very Joyous Holiday Season For You All

### NEW SOGES MEMBERS

- No. 244 — Glenn Miller, Supt., Pioneer Steel Elevator, Van Dusen-Harrington Co., Minneapolis (transfer from E. L. Dobbin).
- No. 479 — J. D. Manning, Supt., Marquette Elevator, Laval & Co., Minneapolis (transfer from Edwin K. Dillman).
- No. 1007 — Ralph E. Barcus, Screw Conveyor Corp., Hammond, Ind.
- No. 1008 — Emil F. Kadlec, Archer-Daniels-Midland Co., Minneapolis.
- No. 1009 — Kenneth A. Hunt, Archer-Daniels-Midland Co., Minneapolis.
- No. 1010 — J. O. Hibbard, Research Products Co., Kansas City.
- No. 1011 — J. R. Rosenleaf, J. B. Ehsam & Sons Mfg. Co., Chicago.
- No. 1012 — Willard L. Bisbee, Omaha Flour Mills Co., Omaha.
- No. 1013 — Carl L. Elsasser, Farmers Union Coop. Elevator Federation, Omaha.
- No. 1014 — O. E. Bailey, Alva Grain Inspection Dept., Alva, Okla.

"When I started work, I used to dream about getting the salary I'm starving on now."—*Herald, Calgary.*

"The hand is quicker than the eye; that's why you see so many black eyes."—*Frances Rodman.*

# In Plant Warehousing and Shipping HANDLING OR HEADLING?

By ALAN O. MANN

*Peter F. Mallon, Inc., Long Island City, N. Y.*

FOR the past several years the thought has continually hounded me that "material handling" is a misnomer. The old saw keeps buzzing into my mind that "The best way to handle material is not to handle it." So, we don't want to handle it? What do we want to do? At long last I get the chance to foist my simple answer on a crowd of unsuspecting listeners. "We really want to headle it."

Material headling! Sounds silly doesn't it? Sounds almost as odd as the definition of "ethics" given by the little man who has a small clothing store near Penn Station in New York. He and his partner have been there for years because they sell to customers who get on trains and can't come back.

One day, this merchant's young son asked him, "Father, what is ethics?" "Well son," was the thoughtful reply, "it's this way. Just before train time a man comes in and I sell him a pair of pants for \$10. He gives me a new \$10 bill and starts out with his bundle. Even before he is reaching the door I am putting the bill in the cash drawer and I see that there is a second \$10 bill stuck to it. Now then, son, the ethics is, shall I tell my partner?"

Unquestionably the thought strikes us continually that we are trying to get away from handling material, that the **handling** is what costs excessively in money, sweat, fatigue and general human burden; that we're constantly striving, by the use of headwork, by the ingenuity of all our combined brainpower, to eliminate this burden insofar as we are able. "The best way to handle material is not to handle it." Can't we cover it better by coining our own word and saying, "The best way to handle material is to headle it?"

### Misplaced Emphasis

All the complex characters in Chinese and Japanese writing consist of picturization of the thoughts they are trying to express. I don't know how they would picture "material handling" but I imagine they would fall into the same pitfall as we who use the English language. Their hieroglyph would probably look like a man or beast bent over a heavy burden.

By the same token, every time you or I hear or read "material handling," what do we see?

I see great loads of heavy materials on fork trucks, in tote pans, on skids, being pushed, pulled and carried over warehouse floors across shipping platforms, up elevators. I see material being handled and imagine you do too. My point is that the emphasis in the phrase is misplaced. What we **should** picture are situations like those at the Johnson & Johnson Shipping Center, where the impression is not one of handling but rather the absence of handling. I would say that this is a first-rate demonstration of material headling. Perhaps you would prefer to call it "material non-handling."

It is this misplaced emphasis that holds us back from the more rapid solutions to our general problems of handling. We assume at the very beginning that the motion of raw materials into a plant, the motion of processed material through a plant and the motion of finished material to the customer automatically entails the handling, rehandling and storage of such materials all along the way.

It is noteworthy that the real progress that has been made industrially has been made by those who have broken away from this assumption. Those are you who have assumed that, by maximum utilization of headwork in planning, engineering and control you could find the means of operating with a minimum of handwork. You have placed more emphasis on the thinking than on the doing and, by reason of your emphasis, have become outstanding doers. You have **headled** your material instead of **handling** it.

What are the secrets of your success? Let's track some of them down.

The problems of material motion and storage, warehousing and shipping, are fundamental, primary, basic company problems in any industrial firm. Raw material motion and storage is not just a concern of the purchasing division in a company. The motion and storage of processed material is not merely a concern of the manufacturing division of a company. The warehousing and shipping of finished products is not a problem limited to the company's sales division.



Too often, the company aspects of this intermittent flow of materials are destroyed, befogged or damaged by organization and administrative thinking that breaks the problems down into the pieces we just enumerated.

When we break down our materials into raw, processed and finished we immediately and automatically eliminate the thought of flow. When we organize our controls of materials by the categories of raw, processed and finished we consciously and subconsciously assume and plan for stopping points in each category. We endanger the continuity of flow.

#### Directing Head Needed

Who is in the ideal position to get away from this concept of sub-division? Who can forget about the purchasing, manufacturing or sales aspects of these problems and think about them solely as company problems, as problems of flow across all company divisions? Surely it should be easiest for the fellow with a company responsibility, the director, the president or the executive vice president.

This then is the first secret of your success. You have had a directing head who thought of these problems as his own responsibility, who visualized the flow from division to division, who understood the costs of stopping-off points between divisions, and who coordinated the divisional activities to provide flow, reduce inventory and eliminate handling. You had a real administrator who did not consider himself too busy to work on material handling. You had an administrator who acknowledged the first importance of handling and storage costs, and who knew how to headle them.

What's another secret of your success? You had keen thinkers on the jobs throughout those divisions of your business, fellows with inquisitive, informed, imaginative, and ingenious minds who were never satisfied that the first method which popped into those minds was the best method of storing and shipping. They were continually questioning, analyzing, learning and experimenting. They were constantly searching to expand their knowledge of the broad company aspects of their own local situations so that their own improvements would expand into corresponding improvements in neighboring or associated situations.

These were experienced men who were accustomed to working with bull gangs, who lived close in their daily work to the tangible elements of distance, of weight in tons or pounds, of cubic volume and bulk, of sweat in long hours of gruelling labor. These were uninhibited men who never tossed an idea aside as too wild until they had thoroughly exhausted its possibilities. These were men who had lots of wild ideas.

What's another secret of your success? These same men on the job, with

the wild ideas, were invariably good salesmen of a sort. It wasn't enough that they had knowledge, experience, inventiveness and good ideas. They had initiative. They sold their ideas, and got the money and okays to put them into effect. If they hadn't been good salesmen their ideas would have died a-borning.

I remember, in one of my earlier company associations, when our president was planning to address a gathering of company engineers, I was asked to criticize the talk he had prepared. In reading it over I was impressed by the unbroken chain of praise for our engineers. They were extolled as the alpha and omega of our company operations. They were

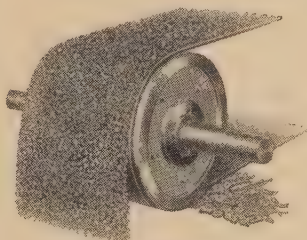
the most important single group in providing the foundations of company success.

#### Thumbs Down

As I read it through, I kept thinking of all the disapproved projects that had been turned back to these same engineers. I thought of the guy in one of the plants who had dreamt up a whole series of warehouse handling revisions but who had never gotten to first base on their approval and installation. In this particular case the fault had not been in the fellow's ideas. They were good. Nor had the fault been with the president. He had never seen the ideas clearly outlined or properly proposed. The engineer had simply done a lousy sell-

## **Don't Take Chances** **with TRAMP IRON!**

With HOMER Permanent non-electric Magnetic Separators you eliminate any possibility of loss of magnetic protection due to Power Failures; Burn Outs; Atmospheric and Temperature Restrictions; Wet or Dry Locations, because HOMER Magnetic Separators are not affected by these elements. HOMER Magnetic Separators are available in the following types: Pulleys, Plates, Drums, Ducts and Portable Units and were designed especially to give unfailing magnetic protection to grain handling machinery.



PULLEY TYPE

Homer Magnetic Pulleys are GUARANTEED to give complete magnetic protection when ordered and installed for specific uses. Homer Magnetic Pulleys are available in standard diameters of 12", 15", 18", 20", 24" and 30", with belt widths ranging from 4" to 60". Ruggedly constructed, Homer Pulleys can be used at head end or as idlers in belt conveyor systems.

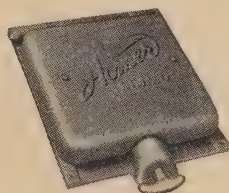
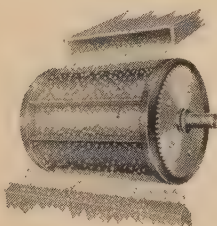


PLATE TYPE

Homer Plate Type Magnetic Separators are furnished in standard widths from 4" to 26", with single or triple air gaps as required. Two types are available: Hinged plate types for easy cleaning in restricted areas, or Hingeless plate types for open or easy to get at locations. Many special fabrications are available based on your own specifications.



DRUM TYPE

Homer Magnetic Drum Type Separators are furnished for the removal of tramp iron from fine or pulverized products, (grain, feed, food, etc.). Homer Drum Type Separators can be incorporated into chutes, hoppers, screw or belt conveying machinery and are furnished in standard diameters of 12" to 30", with face widths from 4" to 60".



**The HOMER MANUFACTURING CO., Inc.**

Dept. 106

LIMA, OHIO

**Producers of Magnetic Separator Equipment Since 1923**



ing job on incompletely worked-out plans.

### Sell Your Ideas

My criticism of the president's speech then, was a suggestion that the praise of our engineers be somewhat toned down. Here, in effect, is what they were finally told. "You have done wonderful work for the company. You are the alpha and omega of our operations. But may I point out that you have a responsibility beyond that of your engineering knowledge and skill. You have a responsibility for selling your engineering. You must not let your ideas die because they are incomplete or because you don't know how to present them.

All your brilliant engineering will be to no avail if you don't get it put into effect. That means helping me to fit your ideas with company finances, inventories, the national economy, personnel restrictions, the attitudes of other divisions and all the myriad elements associated with engineering anything new. Continue to be top-notch engineers but also be salesmen who can convince your officers and me that what you propose must be done. Sometimes, it's your fault that your proposals are turned down—not ours."

I want to dwell on this "idea salesman" awhile longer, for it is largely he who makes for "handling" instead of "handling". There seem to be one or more such men in every progressive company; men who can find quicker, cheaper, simpler ways of doing a job. I almost added "given the opportunity," but that is exactly the point I want to make. The fellow who is capable of improving methods and who is also a good salesman scarcely

### HAPPY BIRTHDAY

Greetings and salutations to the following whose birthdays occur in January:

Jan. 2 — O. B. Duncan, Salina Terminal Elevator Co., Kansas City.

Jan. 3 — Frank J. Kohout, A. C. Horn Corp., Minneapolis.

Jan. 4 — A. L. Heine, Heine Machine Works, Kansas City.

Jan. 5 — L. O. Stownberger, Jos. Schlitz Brewing Co., Milwaukee.

Jan. 9 — John Kitching, G.L.F. Exchange, Inc., Buffalo.

Jan. 10 — Oscar W. Olsen, retired, F. H. Peavey & Co., Duluth.

Jan. 15 — Frank L. Guinane, Loveland Elevator Co., Council Bluffs.

Jan. 18 — Carl Thomer, Strong-Scott Mfg. Co., Minneapolis.

Jan. 21 — Harold A. Hantz, Weevil-Cide Co., Kansas City.

Jan. 24 — Howard E. Habegger, Harper Feed Mills, Inc., Washington, Pa.

Jan. 24 — Ted C. Manning, retired, (Uhlmann Grain Co., Kansas City)

Jan. 24 — Charles F. Walker, Archer-Daniels-Midland Co., Council Bluffs.

Jan. 30 — Frank E. Carlson, Underwriters Grain Assn., Chicago.

Jan. 30 — Frank C. Blodgett, Pillsbury Davenport Elevator Co., Davenport.

*Please send us your birth date and the natal day of your friends so that our records may be complete. Many readers will want to wish you happy returns!*

needs to be given an opportunity. He'll make it.

No worthwhile idea will remain an

idea long with such a fellow. He won't dash off a quick memo with a brief summary of an idea. He'll work his idea over painstakingly. He'll analyze it from every possible angle; he'll experiment with it; he'll gather statistics to prove its advantages, he'll unhesitatingly hunt for all the disadvantages; he'll draw on all sorts of outside sources for help and further ideas; he'll figure out the costs accurately; he'll figure out the savings accurately; he'll search, study and analyze to determine how the company can pay for the installation. He'll write up a complete outline of how the entire conversion or installation can be accomplished; he'll look at it through the eyes of those who have to be convinced; he'll work out ingenious charts, models, exhibits, demonstrations that will appeal to others as solutions of their own problems; he'll finally volunteer to assume all the possible headaches of conversion or installation himself — positive evidence that he knows whereof he speaks, is confident, conscientious and capable. He'll prove in all he does, that it would be foolish to disregard him. No one will disregard him.

### Don't Lose Faith

The fellow who believes he had a good idea but can't put it across, should not necessarily lose faith in his idea. He should better conclude that there's something wrong in his preparation and presentation. He must realize that conceiving the germ of an idea is only a beginning, not an end in itself. There must be added to that germ, days, months, sometimes years of work before the idea can be turned into a new proven method to the advantage of the originator.

I think it was Prof. Irwin Schell who said, "There is no completion to accomplishment." It's usually the fellow who doesn't do the hard work who complains that someone else has walked off with his idea. People aren't able to walk off with the credit or the work of the fellow I've been describing. They wouldn't dare for they would know he could sell that fact as well as the others.

What I have just outlined is obviously the hard way. It pictures a fellow in an operating job down the line, doing his creative work without help. Certainly the more receptivity, understanding and assistance from the top, the easier the task of developing and selling truly improved methods. The toughest part of the job for either an inside or an outside salesman of "handling" ideas is getting at major company facts that seem to be known only to the company officers.

Our bright young engineer can work out a scheme that will save \$100,000 per year in handling costs but find that it will involve an initial lump expenditure of \$200,000. His greatest selling problem is apt to be

**BUILT FOR STRENGTH.**

**THE Nu-Hy GRAIN BUCKET**  
PATENTED AND TRADE MARK REG. U.S. PAT. OFF.

**DESIGNED FOR CAPACITY.**

Sturdily flanged and welded ends offer longer life... less replacements.

Scientific contour enables bucket to fill easily and empty at right moment.

Wide bottom aids carrying bigger loads.

High lip gently scoops up big load and retains it without spillage.

High sides follow contour of adjoining buckets on belt eliminating loss gaps.

**RUGGEDLY BUILT** of heavy gauge steel with bucket sides welded to flanges on front and back. NU-HY buckets are EXTRA Strong... they're made to last, and they pay for themselves through longer life. It pays to improve your elevator leg efficiency. Write for FREE Capacity Analysis Form No. 76.

**PICKS UP and delivers more grain,** because of its high lip and wide bottom, and it discharges at the right moment, due to its scientific contour—no backlegging—Too, its correctly positioned lip enables scooping into the grain gently, avoiding injury to grain. Yes, you'll find NU-HY's a revelation and money savers!

Manufactured and Sold under license in Canada by Sullivan Mill Equipment, Ltd., Toronto

**Screw Conveyor Corporation**  
707 HOFFMAN ST. HAMMOND, IND.  
ENGINEERS HAMMOND MANUFACTURERS  
TRADE MARK REG. PRODUCTS U.S. PAT. OFFICE



that of acquiring enough knowledge of company finances and financial plans to be able to develop a sensible proposal for the installation of his ideas. Without help from the top his proposal may look foolish.

He is quite likely to get into the spot of the young agricultural student who said to the old farmer: "It's my painful duty to tell you sir, that your methods are a century behind the times. Look at that field of oats. You won't make \$5 out of those oats."

"I know I won't," said the farmer, "since they happen to be wheat."

#### Final Secret

What's the fourth and final secret of your success in the reduction of material handling? I believe it is this. You have had people in all levels of management who knew the importance of records; records for forecasting sales; records for planning production, sales, inventory and finances; records for controlling production and sales so that you actually carried **planned** inventories; records that clearly showed you constantly where you stood on costs and revenues; records that recognized material handling costs as separate and distinct from processing costs. You have had:

1. Record consciousness that drives for clean speedy records which make keen headwork possible, with wise decisions based on proven facts.

2. Records that break costs down into their true elements, particularly those records that tell the truth about warehouse and handling wastes or losses and don't cover them up in the general mass of production data.

Let's go back now and summarize the needs which, if filled, provide "headling" instead of "handling" in Warehouse and Shipping. Here are the four needs:

1. A top administrator who recognizes the relationship of warehousing and shipping to the other divisional operations, who strives for continuity of flow, and who helps his men provide it.
2. Keen "idea" men in the operating divisions at all points where inventory and handling are involved.
3. Operating men who are skilled in selling the ideas they generate.
4. Record consciousness and skill at all levels with accompanying top-notch records.—*Before the Material Handling Conference in Chicago.*

"The responsibility of citizenship cannot be delegated by any people who intend to keep their freedom and national security." — *Earl Bunting, managing director, NAM.*

"Eating, generally, is climbing into the luxury class." — *Cecil Brown, radio commentator.*

## Plants and People

### KLINE RESIGNS

Bernie Kline resigned on Nov. 9 as superintendent of the Hales & Hunter Co. (Rosedale plant) Chicago. His successor is Herman Rotenberg.

### BURKE PROMOTED

D. L. Burke (active SOGES member) has been named Gen. Supt. of the five elevators of Nebraska Consolidated Mills Co. Four of them are in Nebraska at Fremont, Hastings, Grand Island and Omaha. The fifth is in Decatur, Ala. His assistant, Jess Wright, will take care of the Omaha plant.

### INJURED BOY WINS LONE RANGER CONTEST

Twelve-year-old Tim Tierney feels he is the happiest boy in the world. A year ago he thought he would never ride again. The stocky New Ulm, Minn., youth was presented on Monday with a 3-year-old American albino horse as one of 10 youngsters in the country to win a Lone Ranger coloring contest.

Tim overcame extreme handicaps to win. In August of last year he was severely burned when two youngsters

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## FOR EFFECTIVE DUST AND GAS PROTECTION

### ROBERTSON Explosion Ventilators

#### WILL

Remove the more explosive fine dust from the leg by continuous gravity action

#### WILL

Release pent-up gases and flames in case of an explosion

#### WILL

Minimize the possibility of a secondary explosion by continuously venting gases

### ROBERTSON Ventilation Engineers

#### WILL

Inspect your elevator and recommend proper sizes and number of ventilators to secure maximum protection at minimum expense.

Write Now for Details

**H. H. ROBERTSON CO.**

Farmers Bank Building  
Pittsburgh, Pa.

kicked a can of flaming gasoline in his direction as he rounded a corner. His arm and face were so badly burned doctors feared he would not live.

However, skin grafting at the Rochester Mayo hospital resulted in rapid improvement. To exercise his injured fingers Tim took to using crayons. He entered the General Mills' contest to color the Lone Ranger as he appeared on a box of cereal and was overjoyed at winning as he had been saving his money for a horse when the accident occurred.

Not only did he receive a horse trained for children, but a Lone Ranger outfit, saddle, bridle, blanket were included also. Today he is the envy of his playmates and the cry of "Hi Yo Silver" sounds through New Ulm streets.

### LEWIS INKS RETIRES

The retirement of Lewis Inks, Elevator Superintendent, Quaker Oats Co., on Nov. 1 was marked by a dinner given him by his co-workers and plant associates. Mr. Inks had been connected with the company for 37 years, starting in the accounting department and later being transferred to the elevator department. He is an active member of SOGES, having been a director several times (including the present), winner of a number of safety trophies and has served on many committees of the organization.

### SID COLE TO PRESIDENCY

Sidney I. Cole, popular member of the Chicago SOGES Chapter, has officially taken over the reins of The Industrial Erectors, Inc., following the death of his brother, Cornelius, last month.

The three brothers, "Cornie," "Sid," and "Lee," banded their talents and their resources together away back in 1928 to specialize in the mechanically-perfect erection of conveyors, special handling and processing machinery, and monorail equipment. Experience had told them that such a service was very much needed; that manufacturers spread all over the continent could not be expected to have their own erection crews in every section; that there was nothing more detrimental to all interests than an unsatisfactory installation, and that one highly skilled firm might well handle all the work of this kind for similar industries.

As the news got around about this necessary and desirable new service one firm after another experimented with the infant firm, then came back for bigger "helpings" as the future permitted. A. E. Staley Mfg. Co., Quaker Oats, Glidden, Albert Schwill & Co., ADM, Arcady Farms Mfg. Co., and Drackett are some of the more widely known names to be added to a long list of grain and feed firms for whom the constantly growing firm has

performed with efficiency, economy and dispatch.

From the very beginning "Cornie" was president, although for the past ten years he was so engrossed in many of the sixty civic, charitable, veteran, political and religious organizations and clubs to which he belonged that for all intents and purposes "Sid" ran the business. Cheerful to his last breath, "Cornie" wanted to "die with his boot on," which he did, writing his own obituary (but for biographical purposes) an hour previously.

### PLANT MAINTENANCE CONFERENCE IN JANUARY

Plans for the third Plant Maintenance Conference, to be held concurrently with the Plant Maintenance Show at Convention Hall, Philadelphia, Jan. 14-17, call for the most intensive examination of maintenance problems ever undertaken, it is announced by Clapp & Poliak, Inc., the exposition management.

Thirty-four separate discussions will be conducted. More than 100 experts, drawn from industrial firms all over the country, will lead the panels. Ten thousand maintenance executives are expected at the show and conference. L. C. Morrow, consulting editor, *Factory Management & Maintenance*, is chairman.

Six general conferences, 27 sectional meetings and the annual banquet are scheduled. General conferences will consider basic problems of all industry while the sectional meetings will be devoted to specialized subjects of interest to particular industries.

General topics include: "Introduction," and "Maintenance Costs," on the first day; "Inspection Methods and Records for Preventive Maintenance," and "Planning and Scheduling Maintenance Work," on the second day, and "Training Maintenance Workers and Supervisors" and "Lubrication," on the third.

On the last day of the conference, 16 round-table groups will meet. Topics include organization of personnel; maintenance operating policies; safety and plant protection; plant housekeeping; welding; maintenance of mechanical equipment; maintenance of power plants and service equipment, and maintenance applications of handling equipment and its upkeep.

Two hundred companies will display products and services necessary for maintenance. Both conference sessions and exhibits will place the principal stress on preventive maintenance. The exhibit area will cover four times that of the first show.

One way to get rid of the noise in the rear of your car is to have her sit up front with you. — *Burleson News, Burleson, Texas*

"Men always make passes at girls who drain glasses." — *Delora Bueno, singer.*



## IN THE HOPPER

**Exasperated Wife:** "The night before last you came home yesterday, and last night you came home today. If you come home this evening tomorrow, I'll go straight home to mother."

*A Kentucky colonel always closed his eyes when he took a drink. When questioned concerning this habit, he explained: "The sight of good lickah, suh," he said, "always makes my mouth water, and I do not care to dilute my drink, suh!"*

In the early days of Phoenix, Ariz., an old-timer was elected justice of the peace. As was usual he knew no law. When cases were brought before him he would take out, with a flourish, a fine looking book, inside of which he had fastened a Sears-Roebuck catalog. One day he thumbed the pages, put his finger on a point and said: "You are fined \$4.98."

The defendant got up to protest. "Sit down!" his lawyer cautioned, pulling at his coat-tail. "You're just plain lucky he turned to Pants instead of Pianos."

*"Every morning when I come to work my boss kisses me. How can I avoid this?"*

*"Come to work in the afternoon."*

I would I were beneath a tree

A-sleeping in the shade

With all the bills I've got to pay

Paid!

I would I were beside the sea

or sailing in a boat,

With all the things I've got to write,

Wrote!

I would I were on yonder hill

A-bathing in the sun

With all the things I've got to do

Done!

*There was a young girl from Peru,  
Who decided her loves were too few  
So she walked from her door,  
With a fig-leaf, no more —  
And now she's in bed with the flu.*

"What was your Sunday School lesson about?" asked the mother as her small daughter returned from church.

"About a man named Solomon," the child answered.

"And what did you learn about Solomon?"

"Teacher said he had 300 wives and 7,000 cucumber vines!"—*Cargill News*

*Then there was the newly married Hollywood couple who vowed to be true to each other while on their honeymoon.*

An efficiency expert employed by a Congressional committee out to cut the budget, walked around the office

of the Collector of Internal Revenue, looking for heads to lop off. He approached two clerks, who did not appear to be busy, and asked the first: "What are you doing here?"

This clerk, an old-timer, and long since fed up with buck-passing, red tape, office politics and above all, efficiency experts, answered shortly: "I don't do anything!"

The expert nodded, made a note and asked the same question of another clerk.

The second clerk, also an old-timer and long sufferer, replied: "I don't do anything, either."

The efficiency expert's ears perked up, his pencil came down, and muttering excitedly he scribbled: "Duplication of effort—FIRE ONE!"

*Jim: "Say, Joe, can you tell me why there are fewer railroad accidents than automobile accidents?"*

*Joe: "Well, it might be because the engineer isn't always huggin' the fire-man!"*

Say it with perfume

Say it with mink

But never, never

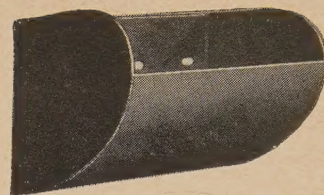
Say it with ink.

*Lady buying a fur coat: "And can I wear this fur coat in the rain without hurting it?"*

*Smart Alec Salesman: "Madame, have you ever seen a skunk carrying an umbrella?"*

"I never tell a man more than I think he'll believe."—*Maine fisherman accused of undue variety in reports of his catch.*

*The wife smiled at her husband when he got home. "Poor darling," she said, "you must be hungry. Would you like some tender chops*



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The patented Logarithmic Curve design of the Calumet Cup has never been successfully imitated. Its performance has never been duplicated.

Only . . . yes only the high speed

### CALUMET <sup>Super Capacity Elevator</sup> CUP

is capable of rendering the super service for which the Calumet has long been world famed.

Scoops up and fully discharges super capacity loads. No backlegging. Can be spaced closer on belt. Operates efficiently over any size pulley at any permissible speed.

*Ask Your Jobber*

Or write for capacity data.

**B. I. WELLER CO.**

327 S. La Salle St.

Chicago 4, Ill.

37 Years of Service to The Grain Trade

*with golden-brown potatoes and green peas, and some apple pie?"*

"No, darling," was the weary reply, "let's save money and eat at home."

"The best investment I ever made in Texas was in not learning to play poker."—*Winthrop Rockefeller.*

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THE "MILWAUKEE" CYCLONE DUST COLLECTOR  
COMPLETE ELEVATING AND CONVEYING SYSTEMS

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*"The Mark of a Good Job Well Done"*

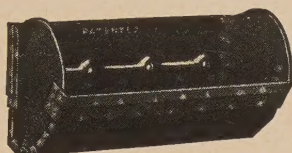
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REMAINS  
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CUPS  
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MADE STRONGER  
WILL  
LAST LONGER  
HAVE**

**GREATER CAPACITY**  
and will operate more efficiently  
at less cost than other elevator cups.

**"DP" - "OK"**

**"CC" - "V"**

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CORPORATION  
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**SALES REPRESENTATIVE**—If you have a good following in the grain, feed, or seed trade you can sell our line of processing, material handling and power transmission equipment, which includes cleaners, mixers, crushers, shellers, gravity separators, scales, treaters, truck hoists, hand trucks, conveyors, bucket elevators, speed reducers V belt and chain drives, motors, starters, etc. You send in the orders, we do the billing, carry the account and you receive the commission. We are interested in a representative for the following states: Ohio, Southern Indiana, Illinois and Wisconsin. Box 6-C-4 Grain Magazine, Board of Trade, Chicago 4, Ill.

### SITUATIONS WANTED

Position as Grain Inspector, 25 years experience. Acquainted with elevator work and boat loading. Held USDA Inspectors' license for 10 years. References on request. Write Box W-5, Grain Magazine, Board of Trade, Chicago 4, Ill.

**WANTED—FEED MILL** Superintendent. Desire man to assume full responsibility of entire Feed Mill operations. Steady employment year around. Good wages, vacation, benefits, etc. Ward G. Ackerman, Inc., Altamont, N. Y.

Experienced Grain Inspectors for full time work in New Orleans. Mild year round climate. Adequate housing available. \$4,200 plus bonus and overtime. Federal license covering all grains required. Give resume of experience and education. Write Box W-3, Grain magazine, Board of Trade, Chicago, 4.

### FOR SALE

**FOR SALE** — 2 good country elevators on G. M. & O. Railroad central Illinois, 115,000 bushels total storage, good condition. Good opportunity for right party. Write Box 6-D-7, Grain Magazine, Board of Trade, Chicago 4, Ill.

**FOR SALE**—TAG-HEPPENSTALL MOISTURE TESTERS — for immediate shipment. Also several used Steinlite Moisture Testers. Write or call Douglas L. Mains Company 408 South Eighth Street, Quincy, Ill.

## Grain Elevator For Sale

1 1/4 million bushel capacity grain elevator in East Central Michigan. Complete. Modern equipment, one year old. On C. & O. and N.Y.C. tracks (in-transit). 24 acres adjoining land. Presently 60% full. Excellent opportunity for profitable elevation and storage. Price 45¢ per bushel.

Call or write: **Walter J. Murray,**  
Penobscot Bldg., Detroit, Mich.

### WANTED

Equipment Supply houses to sell nationally advertised screw conveyor and accessories; excellent delivery. Write **Box 6-D-6, Grain Magazine, Board of Trade, Chicago 4, Ill.**

**FOR SALE**—Elevator and Feed Mill—40,000 bushel cribbed grain Elevator in very good condition with modern feed mill attached. Located in county seat town of 8,000 pop. in heart of one of the best feed and grain territories in Iowa on the Ill. Central Railroad. This concern is doing nice business at present and has unlimited possibilities. Write Box B-12, Grain Magazine, Board of Trade, Chicago, 4, Ill.

**CORN CUTTER** and Grader—has motor—used very little. Write 1-A-16, Grain Magazine, Board of Trade, Chicago 4, Ill.

**FOR SALE**—Used molasses mixers and used California Pellet Mills. Wenger Mixer Co., Sabetha, Kansas

**FEED MIXER**—One-ton floor level feed; has motor good as new. Write 1-A-17, Grain Magazine, Board of Trade Bldg., Chicago 4, Ill.

**FEED MIXER** for sale, has motor, and a late machine. Need Space. Will sacrifice. Write 1-A-18, Grain Magazine, Board of Trade Bldg., Chicago 4, Ill.

**FOR SALE** — New No. 0-12 Western Roller Screen Corn Cleaner. Write Graham Grain Company, 221 S. Fourth Street, Terre Haute, Indiana.

**FOR SALE** — In rich Illinois farming community, two grain elevators totaling 95,000 bushels capacity; also coal business, all for \$30,000 if you hurry. Leonard J. Schrader, 509 1/2 E. Green St., Champaign, Ill. Phone 9094.

**FOR SALE** — Grain Elevator—30,000 bu. capacity. Bean warehouse — 6,000 — 100 lb. bags. Small town 70 miles east of Denver. Good spot for man interested in easy life and income of five to ten thousand yearly. Price of property \$25,000. For full particulars address Box 7-X-11, Grain Magazine, Board of Trade, Chicago 4, Illinois.

**FOR SALE** — Grain, Seed and Feed business; good territory in Pac. NW. Storage 750,000 bus. mostly new. Yearly net profit range after depreciation \$40,000 - \$100,000. Address Bor 6-H-3 Grain Magazine, Board of Trade, Chicago 4, Ill.

### ERGOTY SCREENINGS

Watch top scalp or mill oat stream of your rye, barley, durum screenings for ergot. Send representative sample for an arbitration and offer.

**UNIVERSAL LABORATORIES  
DASSEL, MINNESOTA**

## BETTER BRUSHES FOR EVERY USE!

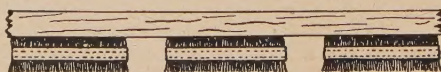


**STAR**

**Warehouse Push Broom**

This is the broom that is used by most large terminal elevators for sweeping grain out of box cars.

### Quality Separator Brushes



We can furnish highest quality separator brushes for any machine.

**WRITE TODAY FOR  
FURTHER INFORMATION**

**FLOUR CITY BRUSH COMPANY MINNEAPOLIS 4, MINN.**



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## GIVE YOU 8 IMPORTANT ADVANTAGES

Meeting the tests of time and experience, good wood grain doors are unequalled by any other type of barricade. Grain men prefer wood grain doors because of their proven reliability. No substitute grain door can match the eight important advantages that wood doors offer...

**1**  
WOOD BARRICADES PERMIT  
STORM DOORS TO OPEN FREELY  
(no bulging—no tearing).

**2**  
GOOD WOOD DOORS ARE  
LEAK-PROOF  
(no waste).

**3**  
WOOD DOORS ARE  
EASY TO APPLY  
(only one man and  
32-10d nails needed).

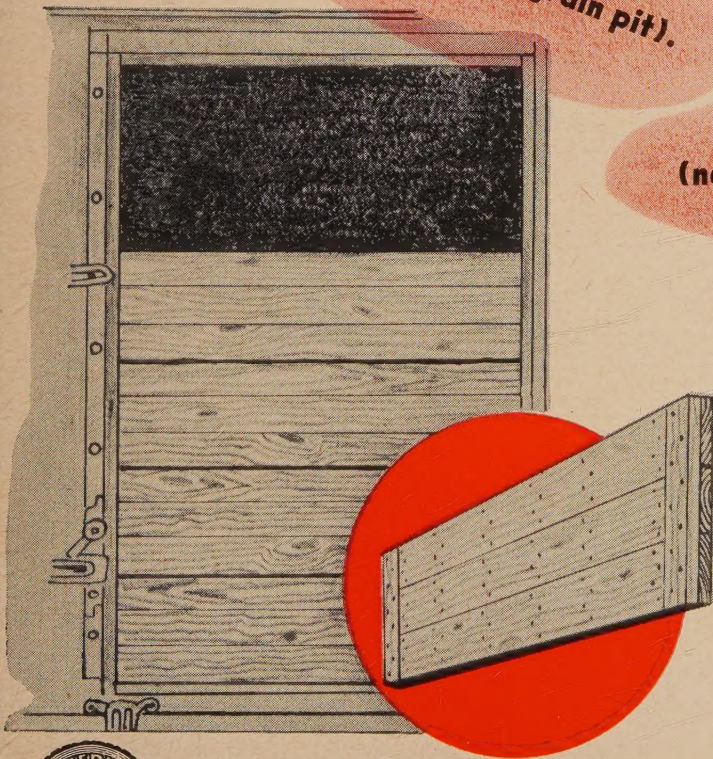
**4**  
WOOD GRAIN DOORS ARE  
EASY TO REMOVE  
(less manpower).

**5**  
WOOD GRAIN DOORS PERMIT  
CLEANER UNLOADING  
(no debris falling in grain pit).

**6**  
THEY CAN BE APPLIED  
TO DAMAGED DOOR POSTS  
(no claim hazard).

**7**  
THEY'RE SAFE TO HANDLE  
(no dangling parts to cause accidents).

**8**  
ONLY EIGHT GOOD  
WOOD DOORS NECESSARY  
(entire car can be coopered  
in 10 minutes).



Because of its naturally greater strength, stiffness and durability

## SOUTHERN PINE

is the best wood for grain doors.



SOUTHERN PINE ASSOCIATION • National Bank of Commerce Building • New Orleans, La.





## It Costs Too Much!



Every Day The Elements Are Gnawing Away at Your Properties, Eating Up and Tearing Down Your "House Of Cards." Why Not Protect Yourself As Best You Can By Consulting With . . .

**Y**ES, That's Right!! . . . It Costs Far Too Dearly To Permit Your Plant Restoration Work To Be Delayed Even a Single Season . . . Those With Costly Past Experience Know That The Rate Of Deterioration ZOOMS Upwards With The Passing Of Each Successive Year . . . Hence The Cost Of An Intelligent Periodic Building Maintenance Program Quickly And Profitably Liquidates Itself IN EVERY WAY!

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